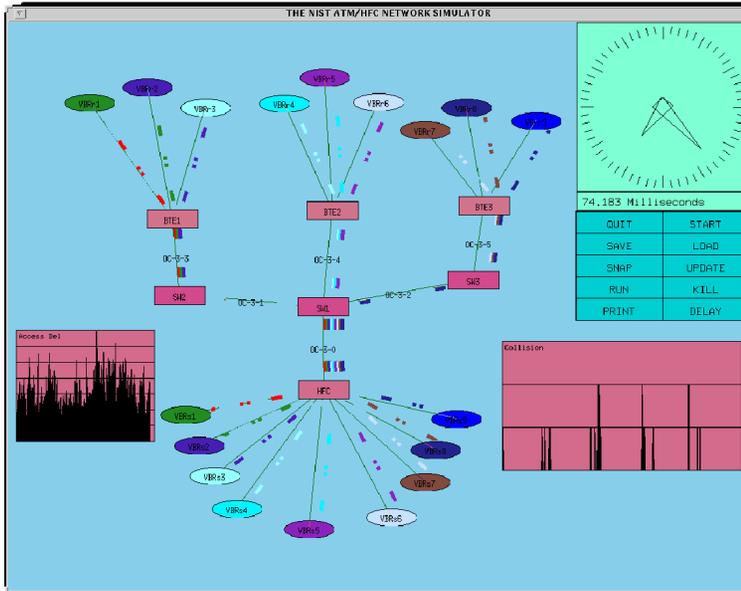


ATM Network Protocol Modeling



Goals

To expedite the standardization of ATM network protocols and evaluate their performance.

Technical Objectives

- Develop tools for ATM network planning and protocol performance evaluation.
- Conduct modeling and performance evaluation of ATM traffic management protocols and flow control mechanisms (Available Bit Rate service).
- Conduct modeling and performance evaluation of ATM routing protocol (PNNI).

Impact

- NIST ATM Network Simulator is widely used by industry, universities, other government agencies (50 request per week).
- Modeling and performance evaluation reports assisted ATM Forum to reach consensus.

Customers and Collaborators

Customers

ATM industry: vendors, service providers, users.
Universities, Research Laboratories.
Government Agencies.

Collaborators

University of Virginia, Charlottesville.
Ecole Nationale Supérieure de Telecommunication-
Bretagne, France.
Hyundai Network Systems

Accomplishments (FY 94 - 99)

- Completed first version of NIST ATM Network Simulator and submitted reports to ATM Forum on performance comparison of credit-based and rate-based flow control mechanisms. (FY 94)
- Released V2 of the NIST ATM Simulator including ABR rate control mechanism. (FY 95)
- Developed the first model of the PNNI protocol (FY 95)
- Conducted a study of ABR Service flow control switch mechanisms. (FY 98)
- Developed a 2nd model of PNNI for automatic generation of conformance test suites. (FY 98)
- Released V4 of the NIST ATM/HFC Simulator including HFC network module, traffic source modules (TCP Tahoe and Reno, MPEG2 GOP GBAR, self-similar), ATM control for TCP/IP, and ABR flow control. (FY 99)
- Developed simulation tool for PNNI and conducted performance evaluation of PNNI implementations (FY99)